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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/661,115	09/12/2003	Martin A. Putnam	CV-0041	6466
<div>7590 Gerald L. De Pardo Cy Vera Corporation 50 Barnes Park North Wallingford, CT 06492</div>			<div>EXAMINER RAMILLANO, LORE JANET</div>	
			<div>ART UNIT 1743</div>	<div>PAPER NUMBER</div>
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		12/27/2006	PAPER	

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/661,115	PUTNAM ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Lore Ramillano	1743	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 June 2004.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☒ Claim(s) 11, 14 and 15 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6/7/04, 6/17/04, 6/22/04</u>                                  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### Claim Objections

1. Claims 11, 14, and 15 are objected to because of the following informalities:  
examiner suggests amending these claims by deleting "is" between substrate and has.  
Appropriate correction is required.

### Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 is indefinite because it cannot be determined what is superimposed at a common location? The grating?

With regard to the substrate limitation in claim 1, there is insufficient antecedent basis for the "substrate" limitation in this claim; and examiner recommends amending claim 1 to recite the substrate as a structural limitation since applicant recites additional structural limitations to further limit the substrate in the following dependent claims.

In this invention, applicant recites in the preamble, an assay stick. However, the claimed invention in claim 1 does not recite a limitation reciting an assay or referring to an assay.

Claim 5 is indefinite because it cannot be determined how the pitches correlate with the number of bits in the codes.

Claim 12 is indefinite because the language in this claim is confusing. For examining purposes, examiner will interpret that this claim recites that the substrate has a plurality of grating regions and non-grating regions. Examiner suggests amending the language of this claim.

#### **Claim Rejections - 35 USC § 102**

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. **Claims 1-2, 6, 10-12, and 15-16** are rejected under 35 U.S.C. 102(e) as being anticipated by Seul (US Pub. No. 2003/0228610).

Seul discloses a vessel (apparatus) comprising: a plurality of microbeads disposed within the reaction vessel, each of the microbeads having at least one diffraction grating, which is superimposed at a common location, and having at least one refractive index pitch. The microbeads are less than 500 microns (i.e. [0047]). The grating provides an output optical signal, which is indicative of a code in the substrate. (i.e. [0082]-[0088], and [0107]).

Seul further discloses a vessel made of a glass material (i.e. [0047]); a rectangular substrate having a reflective coating (i.e. [0088]) and a magnetic charge polarization (i.e. [0073]).

#### **Claim Rejections - 35 USC § 103**

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. This application currently names joint inventors. In considering patentability of the

claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the

various claims was commonly owned at the time any inventions covered therein were

made absent any evidence to the contrary. Applicant is advised of the obligation under 37

CFR 1.56 to point out the inventor and invention dates of each claim that was not

commonly owned at the time a later invention was made in order for the examiner to

consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior

art under 35 U.S.C. 103(a).

8. **Claims 1-20** are rejected under 35 U.S.C. 103(a) as being unpatentable over

Ravkin et al. ("Ravkin," US Pub. No. 2003/0129654).

Ravkin discloses (or teaches) a vessel, which has a plurality of microbeads

disposed within the vessel. The vessel has at least one diffraction grating, which has at

least one refractive index pitch superimposed at a common location (i.e. [0325]), and

provides an output optical signal when illuminated by an incident light signal. the grating

has at least one refractive index pitch superimposed at a common location. (i.e. [0087]).

The grating provides an output optical signal that is indicative of a code in the substrate when illuminated by an incident light signal when illuminated by an incident light signal (i.e. [0093]).

Ravkin further discloses (or teaches) the following: a vessel made of a glass material (i.e. [0123]); a vessel is a tube (i.e. [0117]); a code comprises a plurality of bits, each bit having a plurality of states (i.e. 378, Fig. 12; and [0093]-[0107]); the number of pitches is indicative of the number of bits in the code (i.e. [0093]-[0107]); the beads have a cylindrical shape (i.e. [0157]); the grating is a blazed grating (i.e. [0131]); the substrate has a reflective coating (i.e. [0132]-[0135]); the substrate has a magnetic or electric charge polarization (i.e. [0138]-[0139]); the substrate has grating and non-grating regions (i.e. Fig. 5); substrate has geometry having holes (i.e. [0131]); substrate has a geometry having protruding sections (i.e. [0131]); substrate has an end cross sectional geometry, which comprises a circular, square, rectangular, elliptical, clam-shell, D-shaped, and polygon (i.e. [0115]-[0121]); substrate has a side view geometry, which comprises a circular, square, rectangular, elliptical, clam-shell, D-shaped, and polygon (i.e. [0115]-[0121]); substrate has a 3-D shape, which comprises a sphere, a cube, and a pyramid (i.e. [0115]-[0121]); and a code comprising at least a predetermined number of bits (i.e. 3, 5, 7, etc., Fig. 12, [0093]).

While Ravkin does not specifically disclose (or teach) having microbeads disposed in at least one diffraction grating, Ravkin discloses (or teaches) microbeads (sample, [0157]) attached to the substrate of the vessel in any manner (i.e. association between the sample and particle may include attaching a sample and/or reagent to a particle so that the

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particle is a carrier that supports or holds the sample and/or reagent (i.e. [0156]). Thus, it would have been obvious to a person of ordinary skill in the art to position the microbeads in at least one diffraction grating because Ravkin discloses, in paragraph [0156], alternative arrangements of association between the substrate and microbeads, which includes having the microbeads disposed in at least one diffraction grating.

### Double Patenting

9. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

10. Claims 1-18 and 20 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-4, 6-7, 20, 23-28, 34, 37, and 49-51 of U.S. Patent No. 7126755. Although the conflicting claims are not identical, they are not patentably distinct from each other because they both recite substantially the same subject matter.

Claims 1-18 recite substantially the same subject matter as recited in the patent claims -- both disclose a glass substrate, which has a diffraction grating; a grating that has a refractive index pitch superimposed at a location; a grating providing an output optical signal when illuminated by an incident light signal; a code comprising at least a predetermined number of bits, the number being: 3, 5, 7, 9, 10, 12, 14, 16, 18, 20, 24, 28, 30, 40, 50, or 100; an element (i.e. beads); and a substrate having a reflective coating, a magnetic or electric charge polarization, protruding sections, geometry comprising: circular, square, rectangular, elliptical, clam-shell, D-shaped, or polygon, side view geometry comprising: circular, square, rectangular, elliptical, clam-shell, D-shaped, or polygon, 3-D shape comprising: sphere, cube or pyramid, grating regions and non-grating regions, blazed grating.

Claims 19 and 20 recite substantially the same subject matter as recited in the patent claims -- both teach a method of reading a code comprising: having (or obtaining) a substrate, which has a diffraction grating; having a diffracting grating with one or more refractive index pitches superimposed at a location; illuminating the substrate with incident light, which provides an output light signal; and reading the output light signal and detecting a code.

While claim 1 of applicant's invention does not specifically recite an output signal being a result of a passive, non-resonant scattering from the grating, it would have been obvious to a person of ordinary skill in the art to modify applicant's current invention by incorporating this additional limitation because it would be desirable to have a grating to



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produce signals within a specific wavelength range since the codes are sensitive to specific wavelengths.

Therefore, claims 1-18 and 20 are fully encompassed by claims 1-4, 6-7, 20, 23-28, 34, 37, and 49-51 of U.S. Patent No. 7126755.

11. Claims 1-18 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-5, 18, and 21-26 of U. S. Patent No. US 7106513. Although the conflicting claims are not identical, they are not patentably distinct from each other because they both recite substantially the same subject matter.

With regard to recited claims 1-18, both disclose a glass substrate, which has a diffraction grating; a grating that has a refractive index pitch superimposed at a location; a grating providing an output optical signal when illuminated by an incident light signal; a code comprising at least a predetermined number of bits, the number being: 3, 5, 7, 9, 10, 12, 14, 16, 18, 20, 24, 28, 30, 40, 50, or 100; an element (i.e. beads); and a substrate having a reflective coating, a magnetic or electric charge polarization, protruding sections, geometry comprising: circular, square, rectangular, elliptical, clam-shell, D-shaped, or polygon, side view geometry comprising: circular, square, rectangular, elliptical, clam-shell, D-shaped, or polygon, 3-D shape comprising: sphere, cube or pyramid, grating regions and non-grating regions, blazed grating.

While claim 1 of applicant's invention does not specifically recite an output signal being a result of a passive, non-resonant scattering from the grating, it would have been obvious to a person of ordinary skill in the art to modify applicant's current invention by incorporating this additional limitation because it would be desirable to have a grating to

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produce signals within a specific wavelength range since the codes are sensitive to specific wavelengths.

Therefore, claims 1-18 are fully encompassed by claims 1-5, 18, and 21-26 of U. S. Patent No. US 7106513.


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lore Ramillano whose telephone number is (571) 272-7420. The examiner can normally be reached on Mon. to Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill Warden can be reached on (571) 272-1267. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Lore Ramillano  
Examiner  
Art Unit 1743

12/13/06

  
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